

Species

22(69), 2021

Dioscorea dumetorum (Kunth) T. Durand & H. Schinz.: A new addition to the flora of India

Sweta Mishra, Sanjeet Kumar✉

ABSTRACT

Dioscorea dumetorum has been collected from Mayurbhanj and Nayagarh districts of Odisha, India. After reviewing its distribution through flora and available literature, the species is found to be a new to the flora of India. A detailed description, illustration, associate flora and ecology of the species are provided for easy identification in field.

Key words: Dioscoreaceae, *Dioscorea*, new record, India

To Cite:

Mishra S, Kumar S. *Dioscorea dumetorum* (Kunth) T. Durand & H. Schinz.: A new addition to the flora of India. *Species*, 2021, 22(69), 84-88

Author Affiliation:

Biodiversity and Conservation Lab., Ambika Prasad Research Foundation, Odisha, India

✉Corresponding author:

Biodiversity and Conservation Lab., Ambika Prasad Research Foundation, Odisha, India
Email-Id: sanjeet.biotech@gmail.com

Peer-Review History

Received: 01 February 2021

Reviewed & Revised: 03/February/2021 to 05/March/2021

Accepted: 07 March 2021

Published: March 2021

Peer-Review Model

External peer-review was done through double-blind method.



© The Author(s) 2021. Open Access. This article is licensed under a [Creative Commons Attribution License 4.0 \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

INTRODUCTION

Odisha state is one of the major parts of Eastern Ghats showing rich diversity of wild tuberous plants. Among them, *Dioscorea* L. (1753:1032) species or Yam are very common in all landscapes (Kumar et al. 2012). The genus *Dioscorea* L. belongs to the family Dioscoreaceae, the most prominent with in the order Dioscoreales, a monocot climber (Kumar et al. 2017). *Dioscorea* comprises over 600 species, with varying global distribution. 40 species are recorded from India and 13 species are recorded from Odisha (Kumar 2016; Waris et al. 2021). During the survey on floral diversity from 2009 to 2020 in different regions of Odisha (Aathgarh Forest Division, Rairangpur Forest Division, Similipal Biosphere Reserve, Kapilash Wildlife Sanctuary, Karlapat Wildlife Sanctuary, Nuapada, Cuttack, Khurdha, Puri, Nayagarh, Gajam, Gajapati, Mayurbhanj) authors observed a species from many regions. In 2020, Authors collected the species from Nayagarh and Mayurbhanj districts with their key vegetative parts and analysed. The specimen was collected from Rohibank village at Sambhav, Nayagarh district of Odisha (19° 57' 26.2° N 84° 55' 15.2° E, elevation 140 m). After morphological characterization, critical study with all available literature and herbarium specimens authors confirmed it as *Dioscorea dumetorum* and a new record for India. Ethnobotanical values of this new *Dioscorea* species have been collected from the local communities through PDF (Passport Data Form) and found that the tuber juice is used to make arrow poison and against skin infections.

MATERIALS AND METHOD

The collected specimen is identified by Authors through the critical analysis of morphological characters (Plate 2). The Herbarium (APRFH-41) was made and deposited in the Biodiversity and Conservation Lab., Ambika Prasad

Research Foundation, Odisha (Plate 3). The PDF has been used to collect the ethno-medicinal information.

RESULTS

Taxonomic Treatment

Dioscorea dumetorum (Kunth) T. Durand & H. Schinz.

Synonyms: *Dioscorea buchholziana* Engl.

Description: Large woody climber; Stem twining, prickly and velvet, less prickly in apical part, stem twining is left, up to 2 cm in diameter; Prickles 1-3 mm long, towards gravity; Tubers are spheroid, consist of 3 spheroid shaped tubers, whitish with many fibrous roots, sometimes tubers are cluster of 3-5; Leaves are 3 foliate, 5 to 6 costae, large up to 22 cm, green, less hairy in ventral and dorsal part, broadly ovate, caudate, acuminate, 14x5 – 22x13cm, tapering base; Petiole up to 14 cm, hairy and sometimes purple dotted structure observed, Flowers are in branched inflorescence, inflorescence hairy, green and sometimes whitish green, panicle pubescent; Fruits slightly velvet, 3-12 in numbers, winged and up to 6cm long; Seeds many, 1x0.2 cm, greenish brown in colour, surface rough, attached in the middle of the fruit with golden brown wing, up to 3 cm (Plate 1; Table 1).

Type specimen: India, Odisha, Nayagarh, Rohibank, 19° 57' 26.2' N 84° 55' 15.2' E, 140 m, 2nd October 2020, Sanjeet Kumar 41

Flowering: July to August

Fruiting: September to November

Ecology: Near the bamboo species and water bodies

Table 1: Comparative morphological variation between *D. hispida* and *D. dumetorum*

Character (s)	<i>D. hispida</i>	<i>D. dumetorum</i>
Stem twining	Left	Left
Leaf	3- leaflet	3- leaflet and larger in size
Stem	Purplish, greenish woody	Prickly stem, greenish
Tuber	Fusi form	Trilobed, sometimes multiple
Flowers	Scented and yellowish green	Greenish white
Fruits	Glabrous, depressed ate base and apex	Slightly velvet and winged
Seeds	Whitish	Golden brown

Associate flora: *Dioscorea hispida*, *dioscorea bulbifera*, *Bambusa arundinacea*, *Bambusa vulgaris*, *Cipadessa baccifera*, *Terminalia tomentosa*

Distribution in India: Odisha (Mayurbhanj, Nayaragh, Kalahandi, Aathgarh)

Distribution in world: Nigeria, Gabon, Ubangi-Shari, Zimbabwe, Mozambique, South Africa, Ethiopia, Senegal, Cameroon (Wilkin 2009; Siadjeu et al. 2015; Obidiegwa et al. 2020).

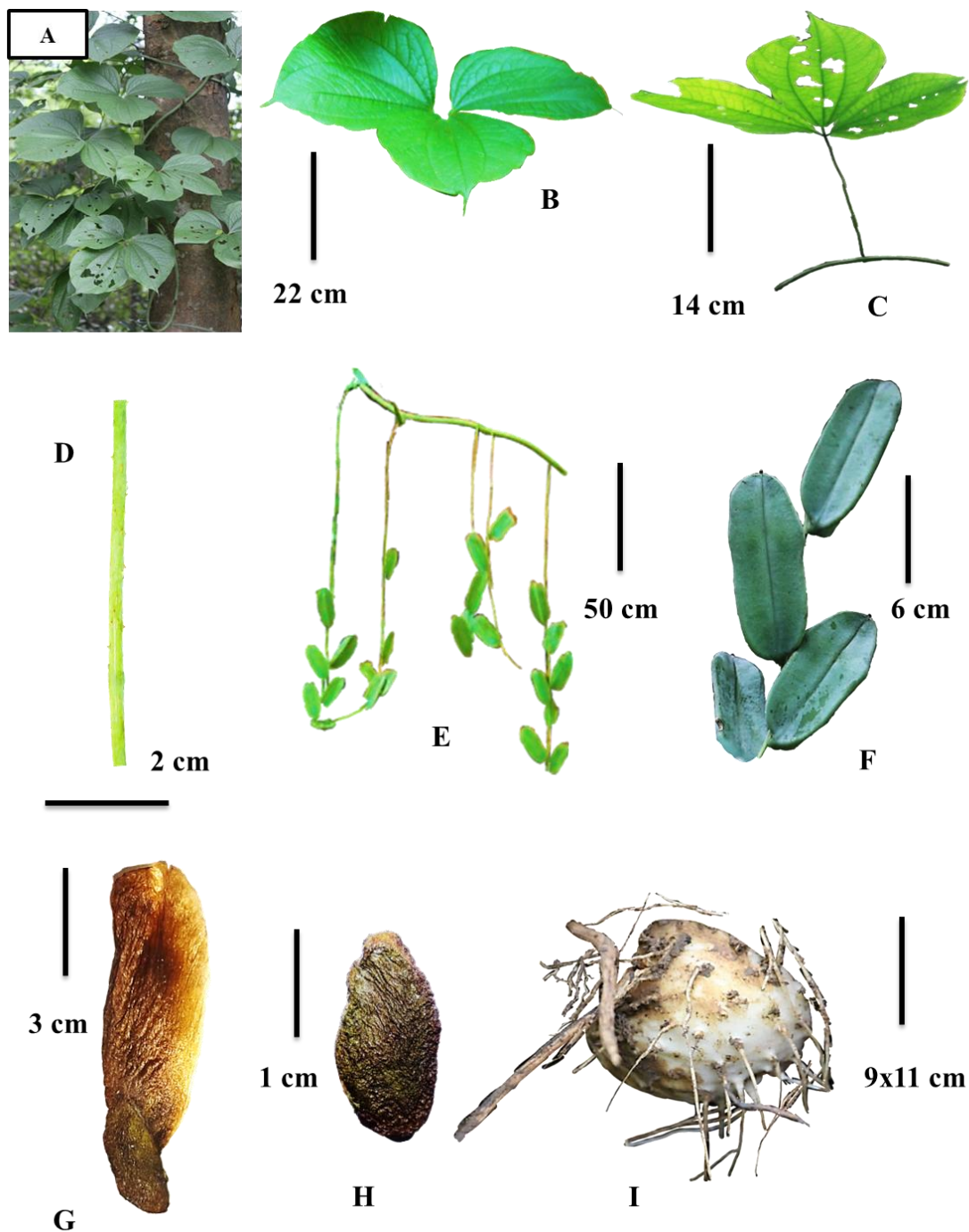


Plate 1: Vegetative parts of *Dioscorea dumetorum*: (A) Whole plant (B) Leaf (C) Petiole (D) Stem (E) Inflorescence (F) Fruit (G) Seed with wing (H) Seed (I) Tuber

Note: The tuber of *D. dumetorum* is similar to *D. bulbifera* but differs with colour and numbers of spheroid tubers. It was observed that leaf of *D. hispida* has 3-foliate as *D. dumetorum* but differs with petiole size and leaf tip.



Plate 2: Collection of *D. dumetorum* and discussion on specimen in field

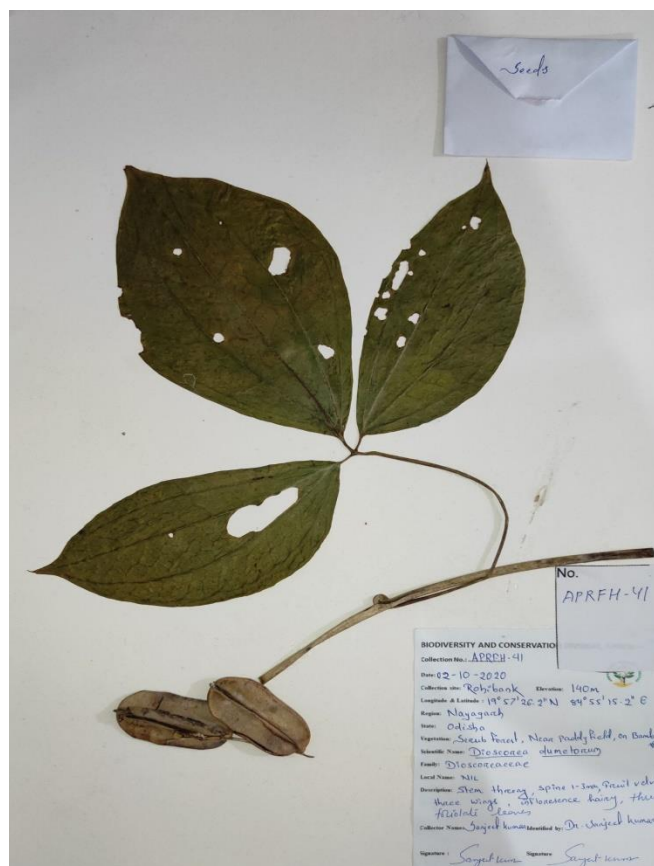


Plate 3: Herbarium of collected specimen of *D. dumetorum*

Acknowledgement

Authors are thankful to Sabramatee, Radhamohan and team members of SAMBHAV & APRF. Authors are also thankful to local communities and Rairangpur Forest Division.

Conflict of Interest

The authors declare that there are no conflicts of interests.

Ethical approval

The ethical guidelines for plants & plant materials are followed in the study for species collection & identification.

Funding

This study has not received any external funding

Data and materials availability

All data associated with this study are present in the paper.

REFERENCES AND NOTES

1. Engler HGA. (1886). *Dioscorea buchholziana* Engl., Botanische Jahrbucher fur Systematik.
2. Kumar S, Jena PK and Tripathy PK. (2012). Study of wild edible plants among tribal group of Similipal Biosphere Reserve forest, Odisha, India: with special reference to *Dioscorea* species. International Journal of Biological Technology. 3(1): 11-9.
3. Kumar S, Mahanti P, Rath SK and Patra JK. (2017). Qualitative phytochemical analysis and antibacterial activity of *Dioscorea alata* L.: A nutraceutical tuber crops of rural Odisha. Journal of Alternative Medical Research. 3:122.
4. Kumar S. (2016). Yam (*Dioscorea* Species): Future Functional Wild Food of Tribal Odisha, India. Frontiers in Bioactive Compounds. 2: 186-208.
5. Linnaeus C. (1907-1778). *Dioscorea* L., Species Plantarum: 2.
6. Obidiegwa JE, Lyons JB and Chilaka CA. (2020). The *Dioscorea* genus (Yam)- an appraisal of nutritional and therapeutic potential. Foods. DOI: 10.3390/foods9091304.
7. Siadjeu C, Toukam GMS, Bell JM and Nkwate S. (2015). Genetic diversity of sweet yam "*Dioscorea dumetorum*"(Kunth) Pax. revealed by morphological traits in two-agro-ecological zones of Cameroon. African Journal of Biotechnology. 14(9):781-793.
8. Waris R, Tripathi S, Shukla AC and Agnihotri P. (2021). An overview of the genus *Dioscorea* L. (Dioscoreaceae) in India. Plant Science Today. 8(1):72-78.
9. Wilkin P. (2009). Dioscoreaceae. Flora Zambesiaca. 12(2): 123-125.